DAREMUS
Dansk Selskab for Forskning i Multipel Sklerose

Ønsker deltagelse i foredragskonkurrencen (4 abstracts udvælges): JA (X) ; NEJ ( )

Navn: Marlene Thorsen Mørch, Institution: Syddansk Universitet, Alder: 29 (hvis deltagelse i konkurrence)

Følgende struktur bedes fulgt:

1) Titel : Antibodies in the cerebrospinal fluid are directed to sites of parenchymal brain injury

2) Forfattere: Marlene Thorsen Mørch, Reza Khorooshi, Nasrin Asgari and Trevor Owens

3) Hypotese: Injury in brain parenchyma will attract antibodies present in the cerebrospinal fluid

4) Metoder: An injury was introduced to the brain parenchyma of female C57Bl/6 mice by either sterotactic needle stab or sterotactic injection of 10µl PBS (2µl/min). One day post parenchymal injury mice received an intrathecal injection (10µl) into the cerebrospinal fluid via the cisterna magna of either Neuromyelitis optica (NMO)-IgG (from NMO patients) + human complement (from healthy donors), NMO-IgG alone, normal-IgG (from healthy donors) + human complement or vehicle. Two days post parenchymal injury mice were transcardially perfused and brains collected for histology. Brains were evaluated for human antibody deposition (anti-human-IgG), loss of aquaporin 4 (AQP4) and glial fibrillary acidic protein (GFAP) (staining with anti-AQP4 and anti-GFAP) and deposition of complement (anti-C9neo, staining for complement membrane attack complex).

5) Resultater: Human antibodies were detected by staining for human-IgG in serial brain sections. Deposition was observed in the brain parenchyma in both the ipsilateral and the contralateral hemisphere of mice intrathecally injected with NMO-IgG + human complement, NMO-IgG alone and Normal-IgG + human complement. Furthermore, the injury site showed increased deposition of human antibodies compared to the corresponding area in the contralateral hemisphere and compared to ipsilateral hemisphere of vehicle controls. Major pathology, consisting of loss of AQP4 and GFAP and deposition of complement membrane attack complex and human IgG was observed in a few mice intrathecally injected with NMO-IgG + human complement.

6) Diskussion/konklusion: Knowledge that parenchymal distribution of autoantibodies from the cerebrospinal fluid is influenced by local injury could help understand the etiopathology of central nervous system disease as well as predict sites of new lesion development. This knowledge could be of use in treatment of patients with antibody-mediated pathology, such as multiple sclerosis and NMO.